MARINE RECORD

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TO RETALIATE.

According to the Detroit News, shipping men in Windsor, Ont., say that in case the Corliss bill becomes a law, the Canadian Government will be forced to compel every American ship passing through any Canadian canal to land her crew at the entrance of the canal, hire a Canadian crew to take the vessel through, and oblige the American crew to travel overland to the other end of the canal. M. K. Cowan, M. P., is thus quoted on the subject

"The Americans have not a single canal that Canadians are obliged to use, while hundreds of American vessels must pass through the Welland Canal, which belongs to Canada; and there is no doubt that if the American government obliges Canadian laborers working in Detroit to move over there under the Corliss bill such a step will be taken in retaliation. If nobody else does so, I will myself introduce a bill compelling the employment of Canadian labor at every point on Canadian territory. Vessels passing through the Welland Canal would then only be able to carry their sailors as passengers, and this is forbidden by laws unless they have a special charter. That one act of retaliation would, as a matter of fact, more than counterbalance the entire effect of the Corliss bill on Canadian labor. I would be sorry to bring it about, but if the American government will get into such a narrow rut why we will be obliged to follow."

A FOREIGN SALVAGE DECISION.

One of the most interesting cases of salvage which has lately occupied the attention of the admiralty Division of the High Court of Justice is that of the Janet Court, a Glasgow barque of 996 tons. This vessel, when on a voyage to New York with a cargo of nitrate of soda, was overtaken by bad weather and dismasted. Her crew thereupon abandoned her, and thinking she was sinking, removed some of the hatches to facilitate her foundering, and so prevent her long being a peril to other vessels. In this condition the steamship Anerley, 1,199 tons net, fell in with her, and at great risk and difficulty took her in tow for 850 miles and brought her safely to St. Thomas, although the weather encountered during the voyage was of such a character that many less resourceful commanders would have abandoned the tow in despair. It appears that the owners of the salved barque abandoned her to the underwriters as a total constructive loss. The underwriters then resolved to take the vessel to New York, where they sold her for £712 and her cargo for £8,476. Deducting from these amounts £2,204 expenses incurred in taking the vessel to New York, the net value of the Janet Court was reduced to just upon £7,000. Of this sum the Court awarded the salvors £3,000, of which £1,950 was to go to the owners, £350 to the master, and £700 to the crew, the mate, boatswain, and two hands who were placed on board the Janet Court to receive a double share.

RIVER AND HARBOR APPROPRIATIONS.

The sundry civil bill contains among many others the following appropriations: For a range light in Grand Marais harbor of refuge $2,000; for completing improvement of channel connecting the great lakes, $1,090,000; improving waterways from Keweenaw Bay to Lake Superior, $400,000. Duluth gets $770,138.25 for the harbor there; Cleveland Harbor gets $400,000; Milwaukee Harbor of refuge, $168,000; Chicago River, $113,000; Illinois and Mississippi canal, $1,000,000.

The committee cut out all the items for light and signal stations in Lake St. Clair, Mud Lake, Crisp's point, Rock of Ages, Fisherman's shoal, and for the gas buoys recommended by the Shipmasters' and Pilots' Association, for the construction of which no preliminary legislation had been secured.

CAPT. GEO. W. McCULLAGH.

At the annual meeting of the Shipmasters' Association, held in Washington, January 19-23, Capt. George W. McCullagh, of Detroit, was re-elected grand president. Capt. McCullagh has been an untiring worker in behalf of the Shipmasters' Association almost since its organization. He served as president of Detroit Lodge several years, and it was largely due to his personal efforts that the lodge was established in its handsome and comfortable quarters at 12 Woodward Avenue.

Since the age of 12, and with the exception of four years served in the Civil War, Capt. McCullagh has followed the lakes. Among the boats he has commanded are the propellers, Wissahickon, Winslow, Cumberland, Idaho, India, George T. Hope, Colorado, Avon and Seneca. It is needless to say that his record with these has been

CAPT. GEORGE W. McCULLAGH.

of the best. He has had accidents, as do the best of them, but they were never caused through lack of skill or negligence of work. He knows the lakes like a book, and is as well-qualified to navigate them as any man living.

Capt. McCullagh has many friends at his home port, and in fact all along the lakes where he is known. His genial, plain personality, without frills or trimming, entitles him to a large acquaintance, and his straightforward manner of doing business clinches the argument, and transforms the mere acquaintances into friends. Though he has always enjoyed the good things of life, viz., well-made, well-selected garments, the best for the larder and a home that is modernly built and equipped, yet he has managed with all this to save a comfortable margin; so that when old age with its accompanying infirmities creeps on, and he sees that his interest in the material problems of life is not so keen as it now is, and his efforts at activity are attended with less responsible effort, he will find himself well-provided with the financial backing so necessary to thorough independence and freedom from worry and humiliation.

In 1895 he bought a half-interest in the smart steamer Rhoda Emily and has since sailed her. He makes has home in Detroit, and is comfortably situated at 77 Alexandrine avenue, east.

TONNAGE PASSING THROUGH UNITED STATES AND CANADIAN CANALS FOR 1896.

Secretary Lamont has sent to Congress a communication giving the amount of freight that passed through the United States and Canadian canals at Sault Ste. Marie during the season of 1896. The following is a summary of the secretary's report. The United States canal was open from April 21 to December 8, 232 days, while the Canadian canal was open from May 7 to December 10, 218 days. The total amount of freight which passed through both canals was 16,239,061 net tons, an increase over the season of 1895 for 1,250,00 tons. There was really a decrease of 3,383,556 tons in the amount of freight passing through the United States canal, but this was due to the fact that the Canadian canal had no before been open for any entire season and for the reason the United States canal was used for nearly all navigation in 1895. The Canadian canal was open only eight-seven days in that season. In 1896, 500,000 tons of soft coal, 17,000,000 bushels of wheat, and 19,000,000 bushels of other grain passed the canals, an increase over 1895 of 23 per cent. in coal, 37 per cent. in wheat, and 23 per cent. in other grain. The tonnage which decreased in 1896 was hard coal, 10 per cent.; lumber, 8 per cent.; and building stone 26 per cent. The value of the freight in 1896 was $186,153,429, an increase over the value of 1895 of $26,578,299. To show the rapid increase in the use of these canals the total annual freight figures since 1881 are given. In that year only 1,567,741 tons passed the canals. In 1891 the tonnage had increased to 8,888,759, and in 1896 this was almost doubled.

WATERWAY TO THE COAST.

Senator McMillan says the question of a deep waterway connecting the great lakes and the seaboard will be taken up seriously and thoroughly at the coming session of Congress.

"It is too late in the present session to take up a question of that magnitude, but the extra session will give the opportunity for considering the recent report of President Angell and his associates on the deep waterway commission, and the shaping of some broad and comprehensive measure. It is a project of vast proportions, and in its effect upon our people is probably far more important than the building of the Nicaragua canal. The report of the commission seems to point out the needed legislation, which must begin with thorough surveys of routes, showing the practicability of some entire project, before appropriations are made for the execution of the project in detail."

TORPEDO BOAT NO. 6 ACCEPTED.

Secretary Herbert waived the usual formalities which have hitherto invariably made the acceptance of naval vessels a tedious procedure and accepted Torpedo Boat No. 6, which is now enrolled on the naval list, though tried only two days ago. This procedure was expedited in this instance on account of the almost marvelous performance of the little vessel as described by the members of the trial board. Sixty knots were covered in 125 minutes, 18 seconds, or at the rate of 28.73 knots per hour, while the requirements were 27½ knots.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

W. A. Hawgood, of Cleveland, was at this port Tuesday.

Capt. Alex. McDougall, of whaleback fame, was in this city on Monday.

The fire-boat docked in Miller Bros.' drydock this week for a new rudder.

Capt. E. Cunningham, of the steamer New Orleans, paid Chicago a visit this week.

Edward Smith, of the firm of Brown & Smith, vessel agents, Buffalo, was here Tuesday.

The Dunham Towing Co. towed the steamer City of London to the Minnesota elevator to load oats.

J. J. Rardon & Co. chartered the steamer Yuma for 135,000 bushels of corn, South Chicago to Erie, at 2⅝ cents.

The tug Jesse Spalding was in the Independent Tug Line's floating dock for repairs to bottom and some reironing.

James A. Calbick & Co. chartered the steamer Nicaragua and barges Grampian and Presley, all with corn, for Kingston, at 4¼ cents, free of tolls.

The Independent Tug Line towed the barge Conley Bros. and steamers Niko and Nicaragua to the Santa Fe elevator to load grain, also the steamer L. R. Doty from Milwaukee to South Chicago.

The Marine Engineers' Beneficial Association, No. 4, Chicago, reception and ball held at the Masonic Temple Hall Wednesday evening, February 10, was largely attended and was a great success. J. V. Burke and wife led the grand march, which was participated in by nearly 200 couples, who afterwards joined in the merry dance to the excellent music of Hand's orchestra. A very enjoyable evening was spent.

Capt. James Ferguson is this season engaged as sales agent for John Sexton & Co., grocers' supplies, 20 and 22 South State street, and M. Mayer's meat market, 12 South State street. Capt. Jimmy is the most widely known vessel supply sales agent, from Chicago to Oswego, from which latter city he hails. He was with Magner & Co., of this city, many years and has also been with John Ford, and he put in last season with Tom Sullivan, the well-known vessel supply man on Rush street.

Engineer Wm. McKittrick, Jr., is again to the front with an elegant oil painting of the ice crusher, Sainte Marie, breaking the ice in the Straits of Mackinaw for a fleet of steamers following in her wake to enable them to pass through the Straits. The sketch from which the painting was made was taken from the deck of a steamer on which McKittrick was engineer in the spring of 1894, and which was locked in the ice when the ice crusher and fleet passed by. The painting is very realistic and does great credit to our amateur artist friend.

The Milwaukee Dry Dock Co. are rebuilding the Anchor Line steamer Conemaugh, from the main deck plank shear up. All new upper works and decks. They are also lengthening the steamer Lora 37 feet. The company are lengthening their south side dock and by April 1 they will be able to dock vessels 450 feet long and they will also have a plant and machinery for repairing iron and steel vessels.

DETROIT.

Special Correspondence to The Marine Record.

L. C. Waldo has chartered the steamer George E. Hartnell at South Chicago, with oats to Buffalo at 2 cents. The cargo is 250,000 bushels.

Work along the Detroit River front is assuming the signs of spring. The sound of the axe and the calking mallet is heard, and painting will soon commence. Aside from filling out, there is not much marine news in Detroit. The feeling, however, is one of confidence, but vessel men unite in expecting things will only open gradually.

The Thompson Towing Co., of Port Huron, is planning to fuel lake steamers in the St. Clair River without stopping them. The company is converting the barge H. F. Church into a coaling barge and lighter, and will equip it with a McMyler derrick. The barge will carry 15 one-ton buckets. The plan is to tow the barge alongside passing steamers, make it fast and transfer the coal to the steamer while she is going on her way at her ordinary speed.

When asked what he thought of the rumor that Cramp, the Philadelphia shipbuilder, intended to build a big drydock at the Soo, Frank A. Kirby replied: "That sounds rather fishy. I believe that Cramp has all he can attend to if he looks after his 'little plant' in the East, in the management of which he gets along, thanks to the backing he receives from the Government. I think it would be an unwise move on the part of anyone to build a new drydock anywhere on the northern lakes just now. There are sufficient docks and shipyards along the lakes to take care of all the new and repair work for some years to come."

In speaking about starting his line this month, Mr. U. Grant Grummond, general manager, said to The Record: "There is nothing to stop us now from going down Lake Erie. I am aware that there is some ice, but my boat is a capital ice breaker and I am confident she will get through all right. I will have another boat to run with this one as soon as she is needed," continued Mr. Grummond, and I will have a daily service to and from Cleveland this year." Mr. Grummond has appointed a young man named P. H. Deitsch his general freight agent, in place of Mr. M. B. Lehr, resigned. Mr. Lehr was a man of some ability, and very conversant with freight and railway matters. Mr. Deitsch has hitherto occupied a subordinate position in a freight office, this being his first general position.

To many it may not be known that as they pass the dummy lighthouse in Lake Erie they pass over a submarine cable connecting Pelee Island with the mainland. One end of the cable comes ashore on the end of the point inside the gap or cut which separates the dummy from Point Pelee, and the other comes ashore just inside the protecting arm of Lighthouse Point on Pelee Island and connects by wire directly with the lighthouse there. Part of the line runs to the south end of Pelee Island, a quarter of a mile from the life-saving station, so that messages for assistance can quickly reach that quarter. The chief drawback, however, is that no regular service is maintained, the system in Canada being a volunteer one, and as a result the men are often miles apart and unaware that they are needed, when occasion calls. In getting reports from Lake Erie, both east and west of Point Pelee for miles, this line is very valuable and constantly used by Detroit vessel owners. The D. & C. line for years has not started a boat in the spring without consulting with Pelee Island and Point Pelee regarding the ice and condition of the lake. When the Canadian government, as is now proposed, removes the cable from its present position and relays it, carrying it around to a point on the east shore of Pelee Island and connecting it direct with the dummy light-house as well as with Pelee Island light-house, the service will be much more efficient than now even, and the dummy will become an important reporting station. Also, the new position of the cable will remove it from the anchorage grounds, where it has already suffered severely from anchors, and at the end next to Pelee it will be relieved from the danger of ice-cutting.

BUFFALO.

Special Correspondence to The Marine Record.

The steel oil carrier built by the Union Dry Dock Co. for the Standard Oil Co., was successfully launched on Saturday. Her general dimensions are 262 feet over all, 254 feet keel, 40 feet beam, and 23 feet molded depth. The capacity is 941,000 gallons. The material used in the construction was open hearth steel, and the cost will approximate $125,000. Her name has not yet been selected.

Messrs. Russell & Watson, successors to Felthousen & Russell, Main street, have just issued a new illustrated catalogue and price list. Their new fluted lens signal lamps, side lights, etc., have now a world-wide reputation and are everywhere highly spoken of. The study of this well-known firm in their lamp department has been on colors, and they now claim to have the most complete and perfect ship lights manufactured.

DULUTH.

Special Correspondence to The Marine Record.

Duluth will learn with satisfaction that an appropriation of half a million dollars has been reported to congress, in the sundry civil bill, making certain the work during the coming fiscal year for which the contracts are soon to be let. The bill is expected to pass without opposition. The continuous contract scheme was put up to save the government money and to hasten the completion of proposed work. The government engineer, it is understood, expects to save enough out of this big contract, as compared with the expense under old systems, to widen the ship canal and rebuild the canal piers. The fish hatchery at Duluth comes in for an appropriation of $4,440, for pay of employes; for harbor range lights at Grand Marais there is $2,000; while over a million is appropriated for the continuing improvement of the channels of the great lakes between Duluth, Chicago and Buffalo. An item of importance is the report of the senate commerce committee on Senator Davis' amendment to the sundry civil bill appropriating $150,000 for the survey of a deep waterway from the great lakes to the coast.

PORT HURON.

Special Correspondence to The Marine Record.

Calkers are at work on the barge Abe Smith.

The barge O. J. Hale is receiving new bulwarks.

Capt. Bradshaw, formerly of the steamer K. M. Forbes, will sail the steamer Iasco this season.

Extensive repairs are being made to the steamer Tom Scott's boiler at the Tunnel City Boiler Works.

Carleton & Cole are repairing the engines of the steamer Colorado, she is also receiving an overhauling.

Fitzgerald Brothers are repairing the steamer Mary's engine and Archie Wright is rebuilding the boiler.

Capt. George Symes will sail the steamer Cadillac next season vice his brother, J. B. Symes, recently deceased.

The Dormer is making regular trips between Port Huron and Marine City, leaving here at 2:30, standard time.

The steamer Toltec is unloading 50,000 bushels of grain at Sanborn's elevator, which she has been holding as storage.

The steam barge Huron City is having new deck frames, part of a new deck, new bulwarks, and some general repairing done, which will amount to some $500.

The carpenters are at work on the schooner St. Lawrence. She will receive new bulwarks and stanchions from the stem aft, about 40 feet, on the starboard bow.

In the pstoffice appropriation bill provision is included that the marine free delivery services at Detroit shall be performed by the use of rowboats and not by the employment of a steam launch or boats.

The steamer Flora has been purchased and at the opening of navigation will be placed on the Port Stanley and Cleveland route in connection with the Lake Erie & Detroit River railway. A new crew is to be put in charge of the boat.

Canadian Pacific freight, which last season was delivered to the Soo line steamers at Windsor, Ont., will hereafter be carried to Midland, Ont., and there transferred to the Gladstone route. This is the new run had in view for the steamer Lora, which is now being lengthened and partially rebuilt at Milwaukee.

The steamer Emily P. Weed recently added to the McBrier fleet, has had her name changed to the Savona. Two of her spars have been removed and her power is also to be reduced. It is believed that he earnings in the past have not been altogether satisfactory, and an attempt will be made to reduce her expenses.

Congressman Miner's bill, which provides for the inspection of all sailing vessels of 700 tons or more, and that all officers of such vessels be licensed, which means that masters of all sail vessels will have to stand an examination as captains of steamboats do now, will be strenuously opposed by the Lake Carriers' Association.

John D. Dyar has engaged Charles G. Armstrong, of Chicago, as consulting engineer for his Detroit-Port Huron electric road. Mr. Armstrong is one of the best known engineers in the country, and is at present engaged in developing the water power of St. Anthony's Falls for use in St. Paul. The work is done for an English syndicate which owns the right and is an undertaking second only to that at Niagara Falls.

Behind closed doors at the Builders' Exchange, Chicago, Monday, owners of 130 dredges on the great lakes, representing a capital of $5,000,000, organized the Lake Dredgers' Association, which in effect is said to be a gigantic pool. As stated in the constitution, the objects of the association are to procure information concerning all prospective contracts and work and to disseminate such information among the members as long before the commencement of such work as possible; to facilitate the procuring of bidders' bonds at reasonable expense; and to secure the most advantageous form of insurance and reasonable rates of premiums thereon.

An effort is being made to have Capt. Thos. Crosgove released from jail in Detroit. Crosgove was arrested by Deputy U. S. Marshal Bernatz last fall. At the time of his arrest Cosgrove was in Canada and extradition was necessary. The extradition treaty between England and the United States holds that a person extradited must be either convicted or acquitted on the charge and returned to the country where the arrest was made. Since waiting for his trial Cosgrove has been locked up on a United States charge of running away with a boat and resisting an officer. Col. Sellers holds that the arrest was illegal and that the United States cannot hold his client.

Capt. James Reid says: "Very much has been written about work on the Cayuga, and that I have tried heretofore to raise her, but this is not true. The steamer has never yet been in shape to raise. There are now four pontoons sunk along side her, and six more are building. When these six are properly placed in position we may talk about raising her, and not before. The ship lies in 101 feet of water, on her starboard side in about six feet of mud. When the pontoons are placed they will be slowly filled with air, the air displacing the water in them gradually. As the ship lifts from the bottom the air in the pontoons will gradually be allowed to escape, thus equalizing the pressure, and allowing her to reach the surface gradually. The ship is practically uninjured and is nearly as good as new. Her machinery is in perfect condition, and when raised she will be all right." Capt. Reid was asked: "You have spent $40,000 already in getting matters in shape to raise her, haven't you?" "Yes," he replied, "I have spent more than $40,000 so far."

CLEVELAND.

Special Correspondence to The Marine Record.

Capt. Henry Stone, who sailed the North Land last season, will command one of the new Bessemer line steamships next season.

Work at the dry docks has been very slack during the week, but it is expected that business will brighten up within the next few days.

The large steel steamer building to the order of the Wilson Transit Co., at the yards of the Cleveland Ship Building Co. will be launched at 11 o'clock, standard time, Saturday.

Office of the General Manager. Mr. J. L. Evans, Acting General Freight Agent, having resigned, Mr. W. F. Herman, will, in addition to his duties as General Passenger Agent, assume charge of the Freight Department of this company, with title of General Pasenger and Freight Agent. All correspondence relative to either of these departments should be addressed to him at Cleveland. Mr. J. J. Neiding is hereby appointed Assistant

General Freight Agent of this company, with headquarters at Cleveland. Both appointments effective March 1st, 1897. T. F. Newman, General Manager.

Discussion of the merits and demerits of Cleveland's lake tonnage taxation system has been revived by remarks credited to two of the city's officials. Chief Dickinson, of the fire department, says that owners of vessels in winter quarters positively have no right to demand that their property be looked after by the fire tugs, as they did a few days ago, when it was thought that some of the vessels were in danger. The fire chief is quoted as saying that the vessels are not taxed in Cleveland, and as the owners have avoided taxation by establishing offices elsewhere they are not entitled to protection.

At their last regular meeting, the Association of Masters and Pilots, Harbor No. 42, appointed a committee to investigate and render a report on the bill now before Congress advocating the examination and licensing of masters and pilots of all sail vessels from 700 tons upwards. The committee are in favor of the measure and no doubt every assistance will be given to have the bill passed as recommended by the commissioner of navigation in his last annual report.

FLOTSAM, JETSAM AND LAGAN.

"Message received. Corliss amendment stricken out. Mails will continue to be delivered to vessels passing Detroit by steam launch."

There is prospect of a good towing rate on Niagara River the coming season. Adam Hartman has bought all of the Tonawanda tugs and will put them into a line, and the Niagara Falls Paper Co.'s fleet will about monopolize the use of the Elk.

Capt. Al. Reed, who commanded the steamer Maricopa last season, is to sail the Brazil vice Capt. Gibson. Capt. John Smith has been transferred from the E. C. Pope to the Selwyn Eddy. Capt. Williams, last season mate of the Boston, will command the Nyanza.

Chief of Engineers Craighill has transmitted to Congress the report of Capt. Townsend, who completed a survey of Ludington harbor made as the basis of an estimate of the cost of improving the same. The estimate of the cost of improving the harbor so as to maintain a channel 18 feet below the present water level of Lake Michigan is $210,000.

At the annual meeting of the American Steel Barge Co., held in New York, Howard A. Colby was elected a director, succeeding H. C. Rouse, who declined a re-election. Mr. Rouse himself had taken the place of Mr. Colby's father, the late Charles C. Colby. F. T. Cates was also made a director, succeeding L. M. Bowers. The other directors were all re-elected. Colgate Hoyt was also re-elected president and treasurer, Mr. Mather vice president, and R. C. Wetmore secretary.

In 1872 it cost about 11½ cents per bushel to send wheat by lake from Chicago to Buffalo. In 1895 it cost a little less than 2 cents. The average cost for carrying goods upon the great lakes is about one-tenth of a cent per ton per mile. The average cost for carrying goods on trunk line railroads is about eight-tenths of a cent per ton per mile. It is therefore about eight times as expensive to send wheat or flour over the railroads which lead out to Chicago as over the great lakes.—Boston Advertiser.

The recent decision of the Supreme Court in regard to tax titles has brought to light the fact that a citizen of Manistique owns the land upon which the Seul Choix lighthouse, on the northern shore of Lake Michigan, near Manistique, is built. When the government purchased the site it overlooked the fact that the state taxes had not been paid upon it, and went ahead and erected the lighthouse and fog signal station. The aforesaid Manistique citizen had purchased the land when it was sold for taxes once by the state, and the recent decision confirms his title.

John E. Williams, of Menominee, formerly superintendent of the Wisconsin & Michigan Railway, has been appointed traffic manager of the Manistee Transportation Co., which operates a steamer line between Manistee, Menominee and Gladstone in connection with the Wisconsin & Michigan and Soo lines. As the steamer Lora, which has hitherto covered the route, will hereafter be run between Gladstone and a Georgian bay port, another steamer will have to be substituted. It is possible that a selection has already been made, but if so the matter is being kept quiet.

The postoffice appropriation bill formulated by the House committee on postoffices and postroads includes a provision that the marine free delivery service at Detroit shall be performed by the use of row-boats, and not by the employment of a steam launch. Chairman Loud, of the committee, is indignant about the matter. He said the bill in all appropriated about $90,000,000 and this petty, picayune service at Detroit was the only thing in which directions were given the postoffice department as to how the service should be performed. He didn't know and didn't care whether it could be done by rowboats. It was an insult to the first assistant postmaster-general to specify in this detail alone. Congress might as well direct the postmaster-general to deliver mail at certain places with a bicycle only. Hon. Thomas Cranage and others of Bay City, interested in lake shipping, telegraphed Congressman Crump to use his influence to defeat the Corliss amendment to the bill affecting the Detroit River marine service, and on Saturday received the following reply:

ABSTRACT OF BIDS.

Abstract of proposals received at Duluth, Minn., for dredging in the harbor at Duluth, Minn., and Superior, Wis., opened February 15, 1897, by Major Clinton B. Sears, Corps of Engineers.

Amount proposed to be expended on this work and for which contracts have been authorized, about $1,850,000.

No. of Bid.	NAME AND ADDRESS OF BIDDER.	FOR DREDGING. Per cu. yd., scow measuremen: In District No. 1. 13,563,000 cubic yards.	District No. 2 5,264,000 cubic yards.	District No. 3. 2,173,000 cubic yards.	TOTAL.
		Cts.	Cts.	Cts.	
1	Eugene Breymann, John B. Breymann, Toledo, O.....	10¼	11	13½	$2,275,762 50
2	P. McDonnell, Duluth, Minn...	7½	8	10	1,655,645 00
3	Chas. S. Barker, West Superior, Wis.....	7½	8	10	1,655,645 00
4	American Dredging Co. et al, Philadelphia, Pa., etc.....	9	10	11	1,986,100 00
5	C. E. Mitchell & Co., Ludington, Mich.....	11	13	15	2,502,200 00
6	Williams, Green & Williams, Duluth, Minn.....	7½	8	10	1,655,645 00
7	Samuel O. Dixon, Racine, Wis.	12½	15	18	2,876,115 00
8	The Lydon & Drews Co., Chicago, Ill.....	12.7	13.7	14.3	2,754,408 00
9	Alphonzo B. Powers, San Francisco, Cal.....	12½	12½	12½	2,625,000 00
10	Wm. A. Starke, Milwaukee, Wis	10	11	13	2,217,830 00
11	The L. P. & J. A. Smith Co., Cleveland, O.....	12	12	15	2 585,190 00
12	James Rooney, Toledo, O	10	11⅛	13¼	2,229,842 50
13	R. J. Cram, Detroit, Mich.....	12¼	13⅛	15⅛	2,681,033 75

Award not yet made. Average price per cubic yard 7·88 100c

CLINTON B. SEARS,
Major Corps of Engineers U. S. A.

BOILER STEEL.

The United States government engineers have been receiving boiler plate for use in some of the gunboats of the navy on which the specifications are probably the most severe of any which are now issued. These specifications require in a plate 1 7-16 inches thick, a tensile strength of 65,000 pounds and an elongation of 24 per cent in longitudinal, and 22 per cent in transverse test pieces, and in a bending test the specimen is required to bend double to a U-shape, with a distance of 1 7-16 inches between the arms. Althought it may be difficult to secure materials which will fill these requirements.

During some experiments made by the Carbon Steel Co., of Pittsburg, plates were rolled which were 17-16 inches thick, 152 inches long, 114½ inches wide, and weighed 7200 pounds. Two of these plates were rolled and one of them sheared up and test pieces taken from different points. One piece gave a tensile strength of 65,200 pounds and an elongation of 25 per cent. in eight inches. Another transverse test piece bent over solid upon itself. From this it will be seen that this steel more than meets the government requirements in not only the tensile strength and elongation but also in the bending test. 8he most remarkable pieces in this collection, however, were cork-screws or twist drills 1 7-16 by 5-8 inches and which were bent cold in order to show the ductility of the steel. A chemical analysis of the plate is as follows: Carbon, .31; Manganese, 35; Phosphorus, .029; Sulphur, .023. A careful examination of the samples of the ordinary run of steel manufactured by the company fails to reveal any sign or failure of the metal and the curves in the twisted pieces are apparently as regular as they would be if cut on a lathe, which would not be the case if the metal was not uniform in the texture.—American Manufacturer.

The March Century is to be an "Inauguration Number," devoted especially to articles on life in the White House and at the Capital, illustrated with a great number of interesting pictures, including two new protraits of Major McKinley and one of President Cleveland at his desk,—all from photographs taken especially for The eCntudy. A large edition will be printed. The interest in The Century's serials, "Campaigning with Grant," and "Hugh Wynne, Free Quaker," is so great that both the January and February numbers went out of print almost immediately upon issue.

Negotiations between the owners of the lost Canadian steamer Acadia at Hamilton and Capt. James Davidson for one of the steamers he is building for the Welland canal trade are reported to be off.

COST OF ARMOR PLATE.

General Manager H. C. Frick, of the Carnegie Steel Co., has submitted to the Senate Committee on Naval Affairs a written statement upon the question as to what should be the price of armor plate. After referring to the report of the board of United States officers appointed to investigate this matter, Mr. Frick says:

"We find that they estimate the total cost of one ton of armor at $423.31. We should be willing to accept their report, except their shop cost is proved to be too low by omission of certain parts of processes noted by Mr. Schwab, and which he will explain when he appears for us before you. Lieut. Rogers' report we should accept upon this point.

"Two items we ask to be left to arbitration, the government appointing one arbitrator, we another, these two a third, a decision of the majority to be final. All these men, of course, to be impartial and acquainted with steel manufacture.

"The items we think unfair to us and ask to be arbitrated are, first, annual dividend on the capital stock at 6 per cent. The average manufacturer pays 6 per cent for capital that he borrows; when commissions and balances expected to remain on deposit are included 6 per cent is a low average cost.

"It is an axiom that if capital in business cannot make 6 per cent interest, and in addition thereto, 6 per cent profits, no man is justified in incurring the risks of business; but we do not think that even this would be a fair allowance to the manufacturer of armor. We make, say, 1,500,000 tons of steel per annum; the 2,500 tons of armor we make requires at least as much attention, demands as great a proportion of the time of our most valuable men, and gives more trouble and anxiety than all the 1,500,000 tons of steel made for the general market.

"We are confident arbitrators would decide that we are entitled to a very different return than the board suggests.

"Second, the sinking fund provided to cover depreciation is only about 4 per cent of the cost of the plant. This would mean that we should calculate upon 25 years' work building the navy. We have ourselves estimated the period as 10 years, allowing two battleships per year.

"We believe that Senator Chandler, who began the building of the navy, has stated that 20 battleships would probably be the number required; that Secretary Tracy held the same view. Secretary Herbert, if we remember, put the number somewhat higher. We believe that arbitrators would allow us much more than the board has for this item.

"Lieut. MacVay estimates the cost of plant at $3,000,000, and he also allows only 6 per cent dividend on this. He does not include working capital, however, nor allow anything upon it; neither does he allow for cost of reforging. Nevertheless, he makes the cost of single forged armor $398.39, including the two items named. His cost would substantially agree with that of the board.

"We beg to call your attention to the remarkable fact that this board estimated the cost of an armor plant at $3.537,000. This estimate has since been confirmed by the details of cost which we have given; but these did not include $650,000 cost of rolling mill required to make light armor and protective deck plates, which we did not charge to armor department because the mill is also used for other purposes. This makes our total cost over $4,000,000.

"It is not claimed that we made any grave mistake, but perhaps such mistakes as are usually made in the building of the great new plant. On the other hand, our advantages over the government in building a plant are obvious; we had our staff ready and able and experienced men in construction, machinery, and in steel making. Adding stock on hand ($750,000), as stated by the secretary, and necessary expenses for starting new plant, over $5,000,000 will be required before armor is successfully made.

"These reports referred to are the only reports made to that we have the two points named decided by impartial the secretary by his officers which aim to give the cost of armor. We accept them both in the main, and only ask that we have the two points named decided by impartial arbitration."

A very successful test of armor plate manufactured by the Bethlehem Iron Co., for the Russian Government was made recently at the Octha proving grounds, Russia. The test was witnessed by many Russian officials, who expressed great satisfaction at the splendid quality of the plate. The plate was one representing 500 tons of side armor for the Russian battleship Rasticloff. It is of Harveyized nickel steel. The result of the test assures the acceptance of side armor plates for the Rasticloff.

A STEADY PLATFORM AT SEA.

Written for The Marine Record.
By. W. E. Redway, Buffalo, N. Y.
CHAPTER 4.

The form of bow which is best adapted to fulfill these conditions is the ram, which rationally treated, possesses all the characteristics requisite for the purpose. But good judgment and experience are necessary for its application, as one designed for the fore end of a fine line passenger steamer or yacht would be ludicruously out of place in a full cargo boat. The sharper the ship the more pronounced the ram, and the fuller the ship the less should it recede. In fact, in the case of a cargo boat with very full underwater body forward, it should almost reach the vertical. Every case requires separate treatment.

That the "ram bow" is rapidly coming into public favor amongst naval constructors, is too well known to need demonstration here, it is only necessary to refer to the war ships built and building by European nations in which latter it was originally intended for offensive purnew cruisers and torpedo boats, as well as the ironclads, in which later it was originally intended for offensive purposes only. On this side of the Atlantic also the American Government are building their new battleships and cruisers with the ram bow carried to a considerable extent, and in all these vessels, the upper works, at bow, stern and amidships, recede and narrow inwards from the level of the load waterline upwards.

In neither of the cases quoted, however, has the principle been carried out in its entirety. Within reasonable limits, subject of course to the duties the vessels have to perform, it is a question whether the system might not with advantage be carried considerably further than has yet been contemplated.

There may be urged against this form of bow, the probability of great damage being caused in case of collision. The obvious reply to such a suggestion is the historical one of Stephenson's, who when projecting his first railroad, upon being asked what would happen were his locomotive to collide with a cow, when traveling at the great speed of twenty miles per hour, said: "It wad be vera awkward for the coo."

Seriously, however, there is no form of bow which will not greatly damage another vessel in case of an end on collision and the shades of difference between forms are scarcely worth consideration.

The skins of merchant ships as a rule are not constructed so as to withstand the shock of a collision without damage, any more than the cow could resist the charge of a locomotive.

The easy motion of the ram through the advancing wave, which it gently cleaves without any violent expenditure of force to stop the onward progress of the ship; the limited amount of surplus buoyancy of the bow above water; just sufficient to lift it easily over the top of the wave; the small comparative weight of that portion, and it being situated so far back from the forefoot, prevents that sudden and terrific plunge down over the slope of the passing wave that is experienced in the ordinary type of bluff-bowed steamers. Their progress through the water consists of a series of buffetings with all the waves they meet, and which they have to burst instead of cut through, thus making their way through life one continual struggle involving an enormous amount of wasted effort, paid for with coal, from the first to the last voyage.

Whether in the stupendous ironclad rushing with destructive intent upon her devoted foe; whether in the stately and swift ocean greyhound, tearing along without let or hindrance through the fiercest gale, counting the length of her voyage by seconds; or in the homely "ocean tramp," freighted with the friuts of labor and peace, there is no form that will suit itself so perfectly to the requirements in each case as a well proportioned, and well designed ram bow.

With reference to the formation of a vessel's stern, the heavy, barge-like counters and buttocks of the old days are seldom, if ever, seen now, at the hands of modern designers, and there is less scope for improvement in the shape of modern steamers' sterns towards making them easy at sea; what there is lies further on in the same direction in which modern design is tending. An instance of the good effect of this practice was witnessed about three or four years ago when a new steel steamer, built on the Clyde, trading upon the Lakes, was put in dry dock, and under the direction of one of our leading naval architects her buttocks were narrowed in about two and a half feet on each side, so as to make her steer and behave better at sea, with most gratifying results, for although having a block co-efficient, verging towards the nineties, the alteration was a most successful one and has made her a handy and profitable ship.

The further advance referred to would be to discard the full curve of the after waterlines, making an easy curve to the post, adding the displacement, thereby removed from the neighborhood of the load water line to that of the center line of the shaft. This would reduce eddy resistance and establish a closer coincidence between weight and buoyancy, at the same time producing a power which would have the effect of reducing the pitching and ascending motions of the after end.

The practice of enclosing the tail shafts of twin screw steamers in a tube forming a portion of the structure of the ship by swelling out the frames until they enclose them, instead of supporting them on brackets, affords a most effective means for lengthening the duration of the period, and retarding the motion of a ship's stern in pitching or ascending.

It would be manifestly out of place in a paper of this kind (which is intended for those who are more interested in the practical results achieved towards the improvement of the designs of ships, than in the methods adopted to attain it), to enter into a mathematical investigaion of the causes which tend to make a ship roll or pitch. To do that fully the whole question of stability would be involved, and those who are acquainted with the poetry of stability calculations will readily waive the omission, whilst those who are not will become convinced on looking up the subject. For those who wish to investigate the subject of rolling fully, reference may be made to the works of Rankine, Woolley, Froude and White, who are the chief exponents of the modern theory which is now yet not fully understood. The object of this paper is to show that by the recognition and practical application of the results of well known experiments with certain full sized steamers a considerable advance can be made towards obtaining a steady platform at sea.

Sir. Wm. White says: "It appears that very heavy rolling is likely to result from equality or approximate equality of the period of a ship and the half period of waves, even when the waves are very long in proportion to their height," and again, "It follows from the investigation of unresisted rolling that the best possible means, apart from increased fluid resistance, is to give a ship the largest possible natural period for her still water oscillations." All other things being equal, that ship which has the least metacentric height (assuming sufficient for safety of course), will be the easiest at sea, and conversely, the ship with the greatest metacentric height and consequent stiffness or stability in still water, will be the most uneasy —or unsteady, at sea.

These axioms are well known and understood, and yet in spite of every care in the application of theory, first-class ships have recently been built which rolled so heavily that enormous bilge keels have been added to increase the duration of the period of roll—fortunately with excellent results, and now large bilge keels are a sine qua non.

As they are such good things why not have plenty of them? And if they are so efficient when built on the ship as an excresence, why cannot they be incorporated into the form of the ship, by swelling out the bilge around them, in a similar manner to what is being done around the tail shafts of twin screw steamers. This can be done and in a graceful manner, too, carrying up the side with a sharp tumble home, thus tending to reduce any excessive metacentric height and providing additional capacity in that portion of the ship where it is most valuable, viz., under water amidships.

In case of passenger steamers, where large deck room is indispensable, the upper portion of the frames can be returned outwards to any extent desired, even, if so required for lake or river service, similar to the guards of a paddle steamer.

Like ferrules in the ends of forced draft boilers, bilge keels are only makeshifts, and are simply indicators on the road of progress.

The Marine Manufacturing & Supply Co., of New York, recently booked orders for chain cables for Lightships Nos. 67, 68, 69 and 70, also the lighthouse tenders "Mayflower" and "Mangrove."

CROSSED THE RIVER.

(Capt. Robert Moore.)

Capt. Robert Moore died on Tuesday morning at the Marine Hospital, Detroit, after a lingering illness of several months. Capt. Moore was one of the oldest sailors on the great lakes, having sailed for nearly half a century. For more than forty years he had been a captain and had commanded vessels for the most prominent vessel owners on the lakes. Capt. Moore was born in Oswego, N. Y., in 1834, and at the age of 16 enlisted as an apprentice on the revenue cutter stationed at his home. He then went into the merchant marine and at the early age of 21 was made captain of the Morning Star, one of the early steamers of the lakes.

As a navigator he was regarded as one of the most fortunate, and in his whole career none of the boats he commanded had a serious accident. Six years ago his health failed and he retired, when just three years short of a half century spent in battling with the elements. Capt. Moore was a very quiet man, never used profanity, and never drank liquor of any kind.

The funeral took place from the residence of his brother, Capt. Samuel Moore, 504 Fifth street, Detroit, on Wednesday afternoon.

THE GRUMMOND LINE.

General Manager U. S. Grummond announces that the first steamer of this season will leave Cleveland for Detroit, Saginaw, Grand Rapids, and all points in the Northwest, (ice permitting), Tuesday, Feb. 23rd, 8 p. m. Bartlett and Tinker are the Cleveland agents of the company and they quote a low rate on passengers and cargo.

A PART OF THE PROCEEDINGS OF THE BOARD OF SUPERVISING INSPECTORS AT THEIR ANNUAL MEETING.

A synopsis of the work done by the Board of Supervising Inspectors January, 1897, is as follows:

Lifeboat rules: All waters modified to suit the different conditions of navigation, the greatest modifications being in favor of western river navigation.

Pilot rules amended so as to conform to the new law relating to naphtha and other motor power boats, such boats hereafter being subject to the rules of the road, the same as steam vessels.

Rules relating to licensed officers amended to conform to law authorizes a "five" year license instead of "one" year as formerly.

LIFEBOATS APPROVED.

Beerthom (collapsible), English.
Beswiting (Deer Hair, German.
Nuna (wooden bark), Buffalo, N. Y.

BOILERS AND MACHINERY.

W. M. Towers, Rome, Ga., Pipe and Coil Boiler, also Pipe Boiler.
Chas. Seabury, Nyack, N. Y., Water Tube Boiler.
Luppold Bros., Buffalo, N. Y., Pipe Boiler.
Barr, Reynolds & Co., Rochester, N. Y., Pipe Boiler.
Dearing Water Tube Boiler Co., Detroit, Mich. Dearing Duplex Water Tube Boiler.
Benjamin A. Wyatt, Boston, Mass., Pipe Boiler.
Wm. Oldman, Buffalo, N. Y., Water Tube Boilers.
Winthrop Thayer, Boston, Mass., "Thayer Boiler."
G. F. Martin, St. Joseph, Mich., Water Tube Boiler.
Charles Staples, Jr., Portland, Me., Water Tube Boiler.
Osceola Currier, Newark, N. J., Water Tube Boiler.
Paul W. Lichtenberger, Philadelphia, Pa., Boiler.
Charles Ward, Charleston, W. Va., Boilers.
Glasgow Iron Co., Approved Man-hole Plate.
Almy, Providence, R. I., Water Tube Boiler.
James Burt Houghton, Mich., Boiler.
August Miller, Jefferson Parish, La., Pipe Boiler.
Thomas Fearon, Yonkers, N. Y., Pipe Boiler.
Fore River Engine Co., Weymouth, Mass., Boiler.
W. T. Clark, Boston, Mass., Water Tube Boiler.
New York Steam Power Co., Boiler.
H. C. Thompson, Philadelphia, Pa., Pipe Boiler.
Horace See, New York, N. Y., Pipe Boiler.
James C. Wignall, Philadelphia, Pa., "Water Tube Boiler."
Charles M. Weber, Cincinnati, O., Pipe Boiler.
Robert H. Bushman, Baltimore, Md., Pipe Boiler.
Henry A. House, Coil Boiler.
George Bolland, Pittsburg, Pa., Water Tube Boiler.
D. A. Parks, Brooklyn, N. Y., Pipe Boiler
Charles Ogle & J. Hall, Jeffersonville, Ind., Pipe Boiler.

BOILER APPLIANCES.

H. W. Cramp, Philadelphia, Pa., Auxiliary Steam Piping.
H. T. Hayward, Jersey City, N. J., Steam Piping on Ferry Boats.
G. W. Carpenter, Shutitng Stop Valve Automatically.
Wm. H. Miller, Down Draft Furnace and Steam Generator.
Theo. Gueminey, Pittsburg, Pa., Circulating water in boilers and feed water heaters and fitters.
E. E. Roberts, New York, N. W. Roberts Boiler.

DISCRIMINATING DUTIES.

At a special meeting of the board of directors of the Philadelphia Maritime Exchange, held this week, the following memorial was authorized to be sent to the Senate of the United States:

The Philadelphia Maritime Exchange respectfully and most earnestly memorializes your honorable body against the passage of a certain bill, to wit: S. 3232, known as the "Discriminating Duty Bill."

This bill provides that a duty of ten (10) per cent ad valorem, in addition to the duties now imposed by law, shall be levied on all goods imported in ships not of the United States; and, that any and all clauses in existing treaties in contravention thereto be abrogated and repealed.

In the opinion of the Philadelphia Maritime Exchange the provisions of this bill if enacted into law would be disastrous to American shipping, and instead of having the effect, sought to be accomplished, would destroy rather than build up the American Merchant Marine. The discriminating duty would encourage importations into the United States by rail and thus not only build up foreign lines running to Canadian and Mexican ports, but also, by shutting out foreign steamers at San Francisco, drive traffic from the American Trans-Continental Railways to the Canadian Pacific Railway.

The abrogation of some thirty-seven (37) treaties with foreign nations, for it is reasonable to assume that no government would consent to strike out one section and allow the balance of the treaty to remain in force, would disrupt our trade relations with the maritime powers of the world, and the disastrous effect of such disturbance cannot be overestimated. Should foreign governments retaliate, which seems not unlikely, by putting a tax, say of ten (10) per cent, on all goods imported into their countries in vessels of the United States, the loss on outward cargoes, now carried by American vessels, would more than offset the gain on any probable amount of homeward cargo, as it is well known that the most profitable freights to the shipowner are the eastward, and not the westward ones. Many steamers come to this country in ballast, depending entirely upon the eastward bound cargo for their voyage earnings.

The protection sought to be given to the American shipowner by the proposed tax of ten (10) per cent on the value of the merchandise carried, would be most unequally distributed. On a cargo of iron ore the tax would amount to about twenty (20) per cent of the freight, while on a cargo of sugar or tobacco it would be fully three hundred (300) per cent; on corn it would be fifty (50) per cent; on provisions two hundred (200) per cent, and so on; discriminating between shipowners in the first named instance to the extent of giving fifteen times as much protection to one as to the other. In high valued merchandise, such as silks, etc., this unjust discrimination would be still more appalling.

For the reasons set forth, the Philadelphia Maritime Exchange believes that the proposed legislation would inure to the detriment of American shipowners, and work harm to American commerce, and therefore most earnestly petitions your honorable body against the passage of bill, S. 3232.

LIFE BOATS.

By Fred A. Ballin.

The present rules and regulations for the use of life boats and rafts are far from being satisfactory. The arbitrary way of determining the carrying capacity (4484 R. S., Sec. 2), of life-boats by multiplying dimensions L. B. D, by 0.06 for ocean, lake or sound steamers, and by 0.6-7 for river steamers, does not signify that such boats have the required capacity. To illustrate this let us suppose that the midship section of one boat is 90 per cent. that of another, only 50 per cent. or less of the rectangle represented by B×D, and the co-efficient of displacement the same, the first will carry 1.8 times as much as the other. As a result of this rule, boat builders are building boats with so much deadrise, that they have lost their usefulness. The cubic contents or displacement is not taken into account, and consequently, any rule of the above nature is inadequate. Still, as even with a given displacement, two boats will not carry the same load, as the deadweight may be different, I would suggest that a rule should be adopted which would require a certain freeboard amidship and at bow and stern with allowed load of passengers. This freeboard should be at least three-fourths of an inch for every foot of length, or 15 inches for a 20-foot boat, 18 for a 24-foot, etc. The sheer at bow should be double this amount. The inspectors should be authorized to have such boats tested and marked with a waterline. Double ended life-boats for oceans and lakes should not be passed as the saving of people from the water over the sides is dangerous and has caused many boats to swamp, while there is no danger in pulling persons aboard over the stern in square stern boats.

In addition a rule should require inspectors to test boats as to their stability light, requiring that they should support at least two men on the gunwale amidship without capsizing.

In regard to construction, the hull should be built of not less than No. 18, B. W. G. galvanized steel, and all seams and butts should be double riveted with galvanized rivets and guaranteed watertight. If wood is used in stem, keel or stern, this should be clear white oak and cased with galvanized iron of not less than No. 18 gauge on outside, with soldered joints where riveting is impossible.

A LARGE CARGO STEAMER.

It is learned that the new freight steamer Milwaukee, now due at New Orleans, is the largest steamer ever built on the east coast of England. Her dimensions are: Length, 470 feet; beam, 56 feet; depth of hold, 34 feet 10 inches; net register tonnage, 4,755. Her dead weight carrying capacity is 11,700 tons on a draft of 27 feet 2 inches. The cubical measurement of the ship for cargo is 702,700 feet, which at 40 feet equals 17,567 tons; 2,560 tons of water ballast is carried in one deep tank, the remainder in the cellular double bottom which extends the full length of the ship. Her engines are of the triple expansion type, the diameter of the cylinders being 28,46 and 74 inches, with 54 inches stroke of piston. They are capable of developing 3,500 horse power. Steam is supplied by three large steel boilers, allowed a working pressure of 180 pounds. She has accommodation for 1,150 head of cattle on her main deck, which is thoroughly ventilated and supplied with water service. The Milwaukee was built at Wallsend-on-Tyne, E., for Messrs. Elder, Dempster & Co., of Liverpool.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—OHIO.

TREASURY DEPARTMENT, Office of the Light-House Board, Washington, D. C., February 10, 1897.—Conneaut Range Rear Light Station.

Notice is hereby given that the sixth-order fixed white light heretofore shown from the tower on the bluff westward of Conneaut Harbor, Lake Erie, has been discontinued, at that point, and will, on or about March 1, 1897, be re-established in the structure recently erected on the easterly side of the west pier at the entrance to the harbor, and 810 feet S. by E. ⅝ E. (true) in rear of the pierhead light.

The focal plane of the light will be 60 feet above mean lake level, and the light should be seen about 13 statute miles in clear weather. The light will illuminate 216° of the horizon, and will be visible from all points of approach from the lake. With the pierhead the light will mark a range line, parallel with the axis of the pier, to guide to the entrance between the piers.

The structure is a square, dark-red, pyramidal, inclosed tower surmounted by a lantern.

The approximate geographical position of the tower, as taken from Chart No. 70 (Lake Erie Coast Chart No. 4) of the United States Survey of the Northern and Northwestern Lakes, is: Latitude, North, 41° 58′ (21″); Longitude, West, 80° 32′ (59″). By order of the Light-House Board:

JOHN G. WALKER,
Rear Admiral, U. S. Navy, Chairman.

ABOUT RIGHT.

A lake contemporary says that Congressman Minor's bill, which provides for the inspection by the Government of all sailing vessels of 700 tons or more and that all officers of such vessels be licensed, which means that masters of sail vessels will have to stand an examination as captains of steamboats do now, will be strenuously opposed by the Lake Carriers' Association. There is no doubt but what Representative Minor expected opposition from this source before the bill was even drawn up. There is no more reason why a man should be allowed to command a sail vessel without a license than there is for a captain running a steamboat without a certificate of competency. As it now is any one can command a sail vessel whether he be qualified or not, this is no fault of the person or persons commanding such craft, but the law-makers. The Advocate is gratified in being able to state that there is one man in the House of Representatives that thoroughly understands these points and that is Representative Minor, who hails from this district, namely, Sturgeon Bay. As most of our readers are aware, Mr. Minor is a licensed pilot.

MARITIME LAW.

THE STRATHEVIS.

Canadian-Australian S. S. Line v. The Strathnevis.
Pacific Imp. Co. et al vs. Same.
(District Court, D Washington, N. D. November 2, 1806.)
Nos. 971, 972.

SALVAGE—WHEN PAYABLE—SUCCESSFUL EFFORT.

To earn salvage, success must crown the efforts of the salvors. But, when a vessel has been actually rescued from a situation of peril, all who have contributed at any stage of the rescuing services are entitled to a share of the reward.

SAME—ABANDONMENT OF UNDERTAKING.

Voluntary abandonment of an attempt to rescue a vessel in peril works a forfeiture of the right to salvage. But when salvors are prevented by stress of weather, fog, or other circumstances beyond their control, from rendering further assistance, and there has been no willful disregard of duty on their part towards the imperiled ship, there should be no forfeiture.

SAME—FORFEITURE—REDUCTION OF COMPENSATION.

The amount of salvage to be awarded should be commensurate with the merit of the salvor's conduct; and when salvage has been earned, and there has been no willful misconduct or neglect, mere failure on the part of the salvors to do all that might be done under the circumstances affords good ground for reducing the amount to be awarded, but there is no inflexible rule making forfeiture the penalty.

SAME—MEASURE OF COMPENSATION.

Where a disabled steamship, without motive power, and with one anchor lost, was found during tempestuous weather, at anchor on the lee shore of an island, flying a distress signal, and was rescued with great difficulty and danger by a steamship, and the loss of four days' time, held, that the steamship found was in imminent peril, and being worth, with her cargo, freight, etc., $220,000, while the salving vessel was worth $216,000, an award of $12,000 to her owners, $1,800 to her captain, and amounts varying from $600 to $100 to her officers and crew, was just and reasonable. The Sirius, 6 C. C. A. 614, 57 Fed. 851, followed.

SAME—FORFEITURE—CONTRIBUTING TO RESCUE.

The steamship M. found the steamship S. disabled, in a perilous situation, far from land, and out of the track of inward-bound steamships, at a season when bad weather prevailed, and attemtped to tow her into port. After proceeding a considerable distance, and getting in the usual track of other vessels, the towline parted during a storm at night, and the vessels separated. In the morning the M. searched for the S. for several hours, but finally abandoned all hope of finding her, and proceeded on her course. The S. was found and brought into port by another steamship. Held, that the fact that the rescue was completed by another vessel did not work forfeiture of the M.'s claim for salvage.

SAME.

Where a steamship which has become separated from, and was unable to find, a disabled vessel she was attempting to save, proceeded on her course, without giving notice at a telegraph station less than fifty miles off, held that this fact would very materially reduce the salvage allowed her, the vessel having been finally rescued by another steamship.

These were libels by the Canadian-Australian Steamship Line and by the Pacific Improvement Co., owner of the steamship Mineola, and A. F. Pillsbury, master of said vessel, against the British steamship Strathnevis.

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THAT THRASHING SAILOR BILL.

We have observed the fact that if Senator Sherman goes into the Cabinet, Senator Frye would succeed to the chairmanship of the Senate Committee on Foreign Relations. This will involve his surrender of the position of chairman of the Senate Committee on Commerce. The transfer, if made in March, will be a matter of moment to shipping interests. As all interested in shipping may know, Senator Frye is the most influential man in Congress on our subjects as well as the most widely informed, and in the Senate almost the only man to push maritime legislation. Furthermore, the following are the other majority members of the Commerce Committee, from whom we suppose a new chairman would be chosen: Honorables John P. Jones, of Nevada; Matthew S. Quay, of Pennsylvania; James McMillan, of Michigan; Watson C. Squire, of Washington; Stephen B. Elkins, of West Virginia; Knute Nelson, of Minnesota, and George W. McBride, of Oregon.

We therefore desire to say something in commendation of Senator Frye's devotion to maritime interests, especially because recently he has been subjected to attacks in some misinformed newspapers on the charge that he is trying to restore flogging, while in fact his bill enables a seaman to secure conviction of a master or mate for brutal treatment, which under the present law is well nigh impossible.

With all due regard to Senator Frye, we admit being wrongly informed, or telegraphed to, relative to his amendments and therefore, are pleased to exonerate the Senator from any undue attempt to worst Jack. Senator Frye is acting advisedly and as well for the interests of the owners as the sailor.

THE DECADENCE OF AMERICAN SHIPPING.

There was introduced in the Senate on March 9, 1896, by Senator Frye, a bill providing for the establishment of a Department of Commerce and Manufactures, embodying what seem to be the necessary features of such an institution. The purpose of this measure is to concentrate in a single department all the bureaus which deal directly with the commerce and industries of the country, taking the consular service and Bureau of Statistics from the department of state, and from the Treasury Department many bureaus which are related more closely to the trade of the country than to the finances of the nation.

The National Association of Manufacturers has given to Senator Frye's bill its earnest support. The pending measure now rests in the hands of the Senate Committee on Commerce, and our present efforts are being directed towards securing a hearing on this bill.

There is nothing new or novel in the idea of a department for the promotion of the commerce and industries of the nation. In one form or another this idea has been discussed for thirty years and several measures have been introduced in Congress, most of them more for the purpose of ascertaining the sentiment of Congress than with any serious idea of enactment. Within the past few years, however, the discussion of this subject has assumed a more serious and more practical form and the movement has been gradually accumulating the support of influential business organizations and thoughtful business men.

The importance of this proposed department is pretty generally recognized and its purposes are well understood. There are abundant precedents for the creation of such a department, both in the history of our own country and in the example of other nations.

The United States is almost alone in failing to provide a distinct governmental department whose function it is to promote the interests of commerce and industry.

In the annual report of the president of the National Association of Manufacturers, some interesting figures are given showing the decadence of the American Merchant Marine.

Our coastwise and lake and river commerce is carried by a fleet of magnificent vessels, but in our foreign trade our shipping is weak and ever diminishing. The figures of our foreign commerce for a single year will suffice to show the weakness of our position. During the year ended June 30, 1895, our imports were carried as follows:

From	In American vessels.	In Foreign vessels.
Great Britain	$8,116,991	$150,394,601
Germany	566,632	80,445,791
France	5,722,700	55,856,643
Brazil	3,821,385	75,010,091
Total from all countries	108,229,615	590,538,362

The carriage of our exports for the same period was as follows:

To	In American vessels.	In Foreign vessels.
Great Britain	$9,147,471	$375,632,296
Germany	3,079	91,832,650
France	83,163	45,065,974
Total to all countries	62,277,581	695,357,830

Out of a total foreign commerce of $1,456,000,000 in 1895 American vessels carried only $170,500,000, while foreign vessels carried $1,286,000. The share of our foreign trade carried in American vessels in that year was but 11.7 per cent of the total, which is the lowest point reached in American shipping. The lowest previous record was made in 1893, when the percentage was 12.2. In 1895 our ships carried but 3.18 per cent of our imports from and exports to Great Britain; but 5.44 per cent of our trade with France; 6.56 per cent of the trade between the United States and Brazil, and only one-third of one per cent of our trade with Germany.

In 1845, when our share in the foreign carrying trade was creditable enough, American ships handled 81 per cent of our imports and exports. In 1855 the figures had been reduced 75.6 per cent; in 1860 to 66.5 per cent; in 1870 to 35.6 per cent; in 1880 to 17.4 per cent; in 1890 to 12.9 per cent, and in 1895 to 11.7 per cent.

In conspicuous as the American flag is in our own home ports its almost utter absence from many of the great foreign seaports is even more striking. In November, 1895, the American Consul-General at Bangkok, in a report on the foreign trade of Siam, said: "The lack of American shipping everywhere is so noticeable as to give the impression among Asiatics that we are not a commercial nation. Of over 500 merchant steamers and ships that entered the port of Bangkok in 1894 not one was American. Of over 1,700 vessels that entered the ports of Japan in the same year only 32 carried our flag."

A British foreign office report on the commerce of Rio de Janeiro for 1895 records that only 51 American ships entered that port out of a total of 1460. At Bahia in 1894 but one American vessel entered, and in 1895 there was none; while Great Britain entered 216 vessels, Germany 161 and France 94. At Pernambuco there were entered in 1895 351 British ships, 120 Norwegian and 88 German, with only 5 American sailing vessels and not a single steamer under the United States flag.

The entries of steamers at Shanghai in 1895 were 1,789 British, 445 German, 143 Swedish and Norwegian and 2 American. At Canton in 1895 there were entered 1,596 British steamers, 127 German, no American steamers and only one American sailing vessel.

There is a question now going the rounds of the press relative to the efficiency of propeller wheels when immersed at an ordinary depth, or, when working near the surface. The best idea to convey is, that a propeller wheel is like a gimlet or augur and pushes best where it has the most resistance. For instance, an augur going into ripe wood requires little or no thrust, water presses at its base or altitude, hence immersion is necessary. To cite another instance it is possible to determine whether a leak located twenty feet under water will show a greater force than an aperture placed say at only ten feet depth and we surmise that the same rule holds good in the action of a properly designed screw.

NEW ELEVATORS FOR BUFFALO.

In the competition between the Eastern trunk lines and the Southern routes for grain business the arbitrary transfer charges at Buffalo have formed one of the considerations favoring the Southern lines. The charges at New York for lighterage have been another factor of the same character. Action has already been taken to relieve the trade to some extent of the harbor charges at New York, and it now looks as if competition would tend to reduce the elevator charges at Buffalo to a reasonable point.

The Buffalo elevator proprietors, according to the Chicago Tribune, have been able for several years to maintain a pool, and have practically had their own way in the matter of charges. The warehouse toll at Buffalo on the grain trade has been much higher than at Port Huron or Sarnia, and elevator charges have been much heavier at Buffalo than at Duluth, Milwaukee, Chicago or Toledo. This is the more unreasonable, as the elevator proprietors at the points named have to reach for business continually, while the grain traffic of lake carriers naturally gravitates to Buffalo. An immense volume of business is done through Buffalo every year, and the profits must be enormous. The profits have always been high enough to encourage competition, but so far influences have been brought to bear upon independent elevator proprietors to bring them into the pool. During the last year an elevator at Black Rock has been operating outside the pool, but it so located that it cuts little figure in the trade.

Two important interests are expected to enter the field with warehouses at Buffalo. Hill, of the Great Northern Road, has a favorably located site for an elevator, and is expected to build at once. A syndicate including Eames, of Buffalo, Powers Sons and Kneeland & Co., of New York, have also made arrangements for establishing a system of warehouses. Both interests have been attracted by the current charges.

EASTERN FREIGHT REPORT.

According to the weekly report furnished The Record by Messers. Funch, Edye & Co. of New York it is learned that, whilst not so large as last week, the list of steamers chartered for grain reflects a very full week's business, with charters mainly for March loading, whilst April and even later months show some fixtures. The general position of business is not, however, affected by these charters, which are almost entirely for the purpose of covering sales made considerably earlier in the season, as new business, with the possible exception of oats, for which cereal some inquiry has recently developed, cannot be done under present limits, apart a very light enquiry from Europe for further supplies. We learn of a boat taken in Europe at 29c. for case oil, hence to Bombay, making a very considerable advance over freights hitherto offered for this business. Freights in the Gulf ports may be fairly designated as demoralized, and, the enquiry still existing for some timber boats thence being satisfied, owners will have to look to the Northern ports in seeking freights from this Continent for grain and general cargo. Our market for sailing vessels has shown a little more activity during the past week than the preceding one. Whilst we cannot change our general quotations, extreme rates have been paid in some cases where shippers were pressed for prompt tonnage. The general tone of the market is one of firmness, and prospects for sailing vessels in the near future appear to us favorable.

FOREIGN-BUILT YACHTS OWNED, CHARTERED, OR USED BY CITIZENS OF THE UNITED STATES.

Treasury Department, Bureau of Navigation,
Washington, D. C., Feb. 10, 1897.

To Collectors of Customs and others:

The attention of the officers of the customs is invited to the Act of February 8, 1897, printed below. Under the statute, foreign-built yachts owned, chartered, or used by citizens of the United States, if the ownership or charter was acquired on or after February 8, 1897, are subject to tonnage tax in the United States in the same manner as vessels engaged in trade.

Action will be taken by you accordingly, whether or not the yachts are documented under the laws of any foreign country. EUGENE T. CHAMBERLAIN,
Commissioner.

Approved, S. WIKE, Acting Secretary.

AN ACT for the protection of yacht owners and shipbuilders of the United States:

Be it enacted by the Senate and House of Representatives of America in Congress assembled, That section forty-two hundred and sixteen of the Revised Statutes be, and is hereby, amended to read as follows:

"Sec. 4216. Yachts, belonging to a regularly organized yacht club of any foreign nation which shall extend like privileges to the yachts of the United States, shall have the privilege of entering or leaving any port of the United States, without entering or clearing at the custom-house thereof or paying tonnage tax: Provided, That the privileges of this section shall not extend to any yacht built outside of the United States and owned, chartered, or used by a citizen of the United States, unless such ownership or charter was acquired prior to the passage of this Act."

Sec. 2. That section eleven of an Act, entitled, "An Act to abolish certain fees for official services to American vessels, and for other purposes," approved June nineteenth, eighteen hundred and eighty-six, so far as the same exempts any yacht built outside of the United States and owned, chartered, or used by a citizens of the United States, from the payment of tonnage taxes, is hereby repeald.

UNLIMITED SUPPLY.

President D. H. Bacon, of the Minnesota Iron Co., says that he knew of no agreement covering the output of the mines or prices for 1897. All Mr. Bacon would say regarding the impending struggle in the ore trade was:

"There are 300,000,000 tons of ore in sight in the Mesaba range. The Rockefeller holdings, either in fee or under lease, including the fee of the Mountain Iron Mine, which has been recently leased to the Carnegie Steel Co., no doubt approximate 100,000,000 tons. The rest is held by people who have no connection with Mr. Rockefeller's interests.

"Two tons of iron ore can be mined in the Lake Superior region for every one that can be sold. Over two tons of steel rails can be made for every one used by the railroads. It is this unlimited capacity which will give boundless opportunity for warfare. Either of the great companies on the Mesaba range could flood the market with ore once the contest has begun."

The concensus of opinion among the larger ore producers seems to be that there is now better reason than ever why the operators should enter into an agreement. It is pointed out that with the collapse of the steel pool and the demoralization of prices of finished goods, there must necessarily be a big increase in consumption on account of buyers desiring to take advantage of low prices. This will, of course, stimulate the demand for ore, and the operators, while admitting that their prices should be largely regulated by quotations on the finished product, believe they should now, of all times, work together harmoniously.

FIGURES ON DREDGING.

The amount of dredging required on the continuous contract on which Major Clinton B. Sears, Corps of Engineers, U. S. A., will open bids next Monday will be 21,000,000 cubic yards, and the provisions of the contract will require that at least 5,000,000 cubic yards be removed each year.

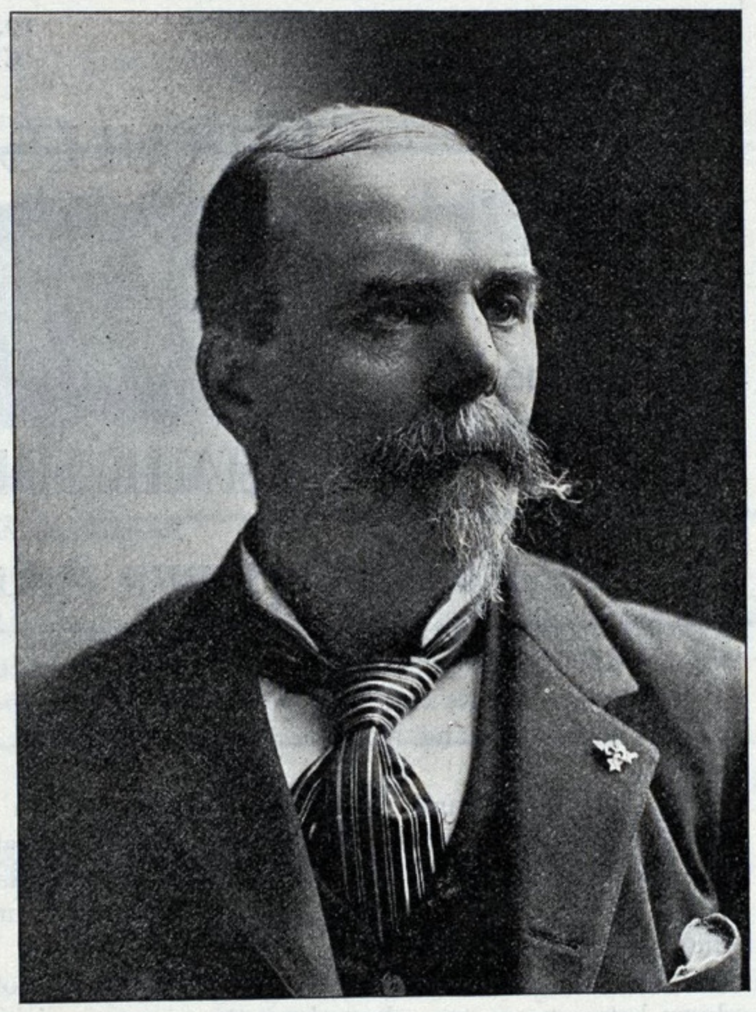
It is estimated that to perform the work an outfit of at least twenty dredges will be required. There are about twelve dredges at the head of the lakes at the present time; so should a firm located there secure the contract, it would be forced to lease a number from down the lakes.

Recent dredging contracts have been let at from 11 to 12 cents per cubic yard, but it is anticipated that in a contract of this size in which there is expected to be strong rivalry among the bidders, this price will probably be cut unless the recent understanding between dredging contractors will tend to hold up the figure.

CAPT. HUGH McMILLAN.

The funeral of the late Hugh McMillan, western agent of the Western Transit Co., was held at the Fourth Presbyterian church in Chicago, last week. A short service for the family was conducted at the residence, No. 424 Superior street, at noon. After these touching rites were concluded, the funeral cortege, headed by the St. Bernard Commandery, Knights Templar, of which Mr. McMillan had long been a member, and they moved toward the church. Next came the honorary pallbearers, who were members of the Chicago Lake Line Agents' Association. The active ball-bearers to the church were sir knights.

Arriving at the church, the funeral rites of the Knights Templar were conducted by Eminent Commander Ramsay, with the assistance of the commandery quartet. At the conclusion of the services, the remains were taken in



THE LATE CAPT. HUGH McMILLAN.

charge by Kilwinning Lodge, No. 311, A. F. and M., of which the deceased was past master for three successive years. Mr. McMillan had presided over this lodge, and a large proportion of its membership was present at his obsequies. The great auditorium of the church was filled at the services.

The Board of Trade had adjourned at 12:15 in honor of the vesselman, who was a member of its directory, and was represented officially by President W. T. Baker, Secretory George F. Stone, and the directors in a body. Many of the most prominent members of the board, who were the personal friends of Mr. McMillan, were also present. Among marine and railroad men attending the funeral were: George L. Douglass, general manager Western Transit Co., Buffalo; Theodore Vosburgh, general freight agent, Buffalo; F. A. Stanley, agent at Troy, N. Y.; Capt. A. B. Wolvin, Duluth; W. A. Livingstone, William Livingstone, Detroit; Agents Cottrell and McClintock, Milwaukee, and P. J. Connor, Buffalo.

The floral offerings were elaborate and numerous. One beautiful piece from Detroit was a testimonial of respect and esteem from the Lake Carriers' Asociation. His associates in the Lake Line Agents' Aseociation gave a magnificent collection of cut roses. The casket was banked in flowers as it lay in the home of the deceased before being taken to the church. The cortege, escorted by St. Bernard commandery, was followed to the grave in Rose Hill cemetery by a large number of friends, there being about 100 carriages in line. Arrived at the cemetery, the burial service of the blue lodge was carried out. Past Master Hugh Hunter, of Kilwinning, assisted by the officers of the lodge, conducted the impressive ceremonies.

The commandery quartet assisted in these final rites. The sad ending of Mr. McMillan's active and successful life brought out a flood of heartfelt sympathy for the family, bereaved without a moment of warning and preparation.

RESOLUTIONS OF CONDOLENCE PASSED BY VESSEL OWNERS IN DETROIT AND CHICAGO.

The shipowners of Detroit, upon hearing of the death of Mr. Mac Millan, met and unanimously adopted the following memorial:

We unwillingly bow to that stern decree of fate which in its cold and unfeeling temper snatched from the fullness of life our friend, associate, and brother, Hugh Mac Millan, of Chicago. His untimely taking away reminds us, however, that

"Man is a ship that sails with adverse winds,
And has no haven till he land at death.
Then when he thinks his hand fast grasps the bank,
Comes a rude billow betwixt him and safety."

Death never came to man more unexpectedly than to Hugh Mac Millan. Having withstood the vicissitudes and surmounted the obstacles which are strewn in the pathway of every man, he had obtained that haven from which he could embark upon the peaceful voyage of unfretted life to enjoy the fruit of his own industry and the rewards of a well-ordered business career. In the twinkling of an eye that rude summons called him to death.

Hugh Mac Millan came of sturdy Scotch ancestry. In him were born all those elemental qualities which go to make the manly man. He was known of men as an impregnable rock of integrity. He was a stranger to dissimulation. Frank, outspoken, decided, he was not intolerant or overbearing, but as modest and gentle as virtue itself. His nature was broad and noble. No man knew him but to love him.

In his long and honored career in lake carrying and navigating enterprises, he builded for himself a reputation for executive skill second to that of no other man. He had no peer in his sphere of activity and no man can fill the place in the lake marine world which was made vacant by his death.

We cannot find words to give expression to the conflicting emotions of sorrow which have abided with us since the tidings of death came to us. He was so large and commanding a figure in our maritime enterprises and withal so highly respected and beloved for his multiplied virtues as man and friend, that our sense of loss is inexpressible.

To his family, whose hearts are weighed down with a weight of sorrow insufferable, we tender our heartfelt condolences. Let it assuage their grief to know that as they esteemed and loved him as husband, father and brother, so we esteemed him as friend and frater.

"Death rides in every passing breeze,
He lurks in every flower."

We fain would escape the penalty of our living, but there is no escape, and so we accept the will of Him who doeth all things well in full assurance that

"It is not all of life to live,
Nor all of death to die."

The Chicago Lake Line Agents' Association at a special meeting adopted the following preamble and resolutions on the death of Mr. Mac Millan, who was agent of the Western Transit Company at Chicago:

Whereas, It has pleased Almighty God to take from us our esteemed and beloved fellow member, Hugh Mac Millan, while in the full enjoyment of a noble, honorable, and useful career;

Resolved, That we, his associates and co-workers in the Chicago Lake Line Agents' Association, realize and feel that, as a friend, his place cannot be filled in our hearts, and that we have lost an associate whose counsel was of great value to us and a man whom we all honored, loved and esteemed; and it is further

Resolved, That we tender to the members of his family our most sincere and heartfelt sympathy in this, their hour of great sorrow and overwhelming bereavement, and that a copy of these resolutions be sent to them.

THE NEW TORPEDO BOAT.

Torpedo boat No. 6, just completed, was sent on a preliminary trial run by her builders on January 20, when she made a speed of 26.85 knots. The result was very gratifying, for the run was made with an untrained crew in the engine room and under reduced boiler pressure. The contract calls for a speed of 27½ knots under 220 pounds of steam, and the little craft was carrying only 180 pounds.

On February 5, during a series of eight runs over the measured mile course in Narragansett Bay, she averaged 28.76 knots an hour. Her highest speed was 30.1 knots. The steam pressure ranged from 205 to 225 pounds.

Amateur Boatbuilders.

Boats built and rigged entirely or in part, stems, stern posts, keels, and frames worked to shape in the wood for amateurs. Entire frames set up and marked and shipped "Knockdown" to any part of the world.
Designs made and enlarged to full size for rowboats, sailboats, launches and yachts.
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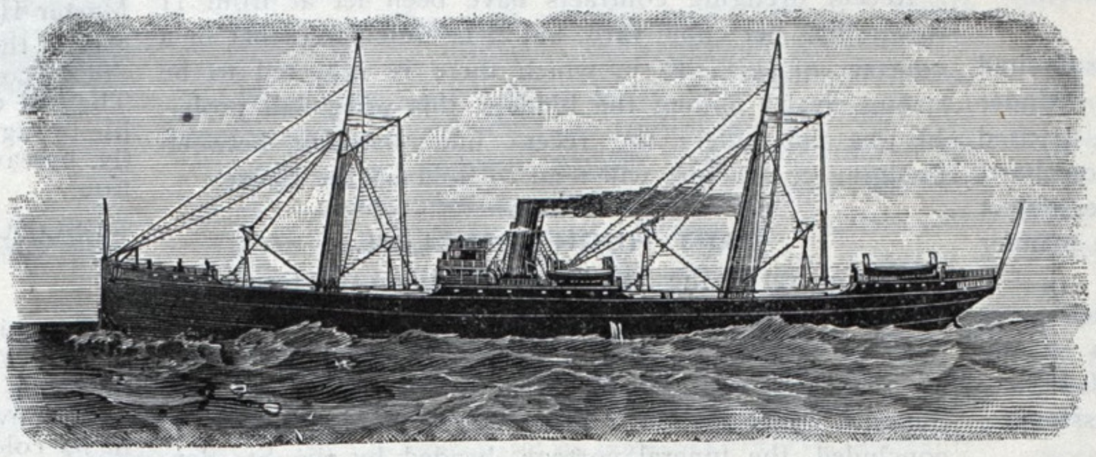

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Always Tight.

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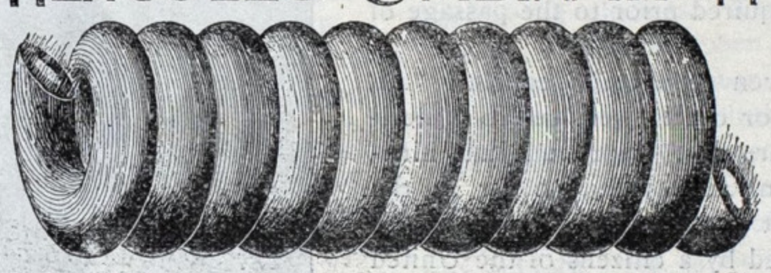

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CORRESPONDENCE.

JOTTING DOWN COURSES.

The practice of jotting down courses is probably as old as navigation; it is an attempt at finding the course over the water by experiment, kept up and advocated by all pilots lacking scientific training. Jotting down courses is with them the highest perfection attainable in running a vessel from point to point and from port to port; and in testing the correctness of a compass. The corrections for variation, deviation, leeway, and current, do not bother them at all; and if their supposed test and findings do not hold good in some particular places on the coast and lakes, the compass is said to be affected by some foreign force, beyond the ken and control of man.

At the beginning of this century such notions and practices were excusable, because good books on navigation and good charts were rare, and the laws governing the deviations of compasses were not known. But at the close of this century after these laws have long been established, and good treatise on navigation abound, the prevalence of such notions and practices invariably proves the low standard of pilots indulging in them.

It is an established fact, that compass errors can only be ascertained, by swinging the vessel to all points and comparing courses with well known magnetic bearings. And it is no less a fact, that the courses steered are always more or less influenced, sometimes considerably, by currents changing with wind and weather; so that courses jotted down one day may entirely be wrong another day. The only invariable standard of courses, are true courses obtained from the chart; from which the courses to be steered are found by applying the corrections for variation, deviation, leeway and current. Each of these corrections has sometimes to be applied to the right, sometimes to the left of the true course, some according to their signs and some according to wind and weather. From which follows, that nobody can foretell with any degree of certainty, what the course to be steered ought to be, if wind and weather and set and drift of current are not known.

All that courses and return courses jotted down are good for, is to determine the error of the floating or patent log, and set and drift of current; provided the compass is correct, and no change of the current takes place during the run.

Under this assumption, course and return course jotted down between any two places have the property of forming with the chart course the same angles. In other words, the mean of the courses jotted down, after one of them is reversed, always agrees with the chart course; which, however, is in itself no proof of the compass being correct, but only an indication that it may be correct. For, the courses jotted down may be entirely wrong and yet their mean above referred to may agree with the chart course, because of errors paralizing one another.

Non-agreement with the chart course, however, always indicates that the compass is wrong, and that the courses are of no use for the purposes mentioned.

The difference of the two courses jotted down, after one of them has been reversed, and the distances run by log on each course, furnish a triangle of which two sides and the intercepted angle is known; the third side representing set and drift of current for both courses combined. A line bisecting the known angle divides the third side into the parts of the drift due to each course. The bisecting line in the triangle represents the distance per log between both places, which distance divided into the distance by chart gives the log co-efficient; that is, indicates the number by which all distances have to be multiplied to obtain the correct distances.

For instance: A is from B, NW., magnetic, 60 miles. Courses jotted down, NNW., magnetic, 90 miles and ESE. magnetic, 61 miles. What is the log-coefficient and set and drift of current? ESE. reversed is WNW.; the mean of WNW. and NNW. is NW., which indicates, by comparison with the chart course, that the compass may be correct. The difference between WNW. and NNW. is 4 points, which angle with the distances 90 and 61 furnish a triangle, the third side of which equals 63 miles; its direction being S 1⅞ W-N 1⅞ E, magnetic. The line bisecting the angle of 4 points is found to be ..67 miles and set and drift of curernt respectively 37.5 and 25.5 miles S by W⅞W., magnetic. The log-coefficient equals 60-57= 0.9. Therefore, the corrected distances run by log and the drift of current are respectively: 90×0.9=81 miles; 61×0.9=54.9 miles; 37.5×0.9=33.75 miles; 25.5×0.9= 22.95 miles.

The preceding illustration shows what jotted down courses by a correct compass, are good for; and it also shows that such courses are good for nothing as soon as the current changes between trips.

JOHN MAURICE.

The "Shipping World Year Book" comes to us for 1897 in its eleventh annual edition, everyone of which has been an improvement on its predecessor. Its motto is "infinite riches in a little room," and as a desk manual in trade, commerce and navigation it is not excelled. The book contains as usual an almanac, the tariffs of all nations and colonies, the new regulations for preventing collisions at sea, tables of distances, trade statistics, pilotage and towage rates, and a complete port and harbor directory of the British Isles, and a directory of all the principal ports of the world, arranged in alphabetical order, stating accommodation, depth of water, tides, trades, and much other information. There is also to this edition a commercial map of the world, which is one of the best and most informing ever issued. The book comprises over 1,00 pages, yet is of handy size and copiously indexed, which makes it exceedingly convenient for reference. Published by the Shipipng World, Effingham House, Arundel street, London, price 6 shillings stg.

LAKE AND OCEAN STEAMERS.

A discussion of "American Lake and Ocean Steamship Models," by Joseph R. Oldham, N. A., M. E., in the January Cassier's Magazine, gives, with numerous illustrations and mathematical demonstrations, some interesting facts concerning the leading types of construction of hulls and machinery on the ocean and inland waters. Mr. Oldham holds that high speed river steamers or smooth water lake steamers may be made comparatively full amidships, with fine ends, whilst steamers engaged in a generally rough water voyage should have their buoyancy more largely distributed toward the bow and stern to prevent excessive pitching in a seaway. With regard to American lake steamers, it appears to Mr. Oldham that the problem facing the designer of a passenger steamer for service is by no means easy of solution. The most suitable type of steamer for a great part of the voyage would be that of an enlarged City of Buffalo or one similar to the new Fall River line steamer Priscilla, whilst for the fall trade over Lake Superior one of the ocean steamers between England and India would not be too strong nor too well protected. Discusisng the comparative merits of single and twin screws, he thinks these advantages may be too dearly bought. Increased length means increased risk when navigating shallow and tortuous rivers and harbors, and for such work twin screws are certainly more suitable than a single screw would be; but the general economic efficiency available by resorting to augmented length and single screw propulsion is manifest. In conclusion, he maintains, as clearly demonstrated, that the higher the speed, the greater the safety; and the more palatial and luxurious the apartments and furnishings, the more satisfactory will be the commercial results of operating lake, sound or ocean steamships.

VISIBLE SUPPLY OF GRAIN.

As compiled for The Marine Record by George F. Stone, Secret ry Chicago Board of Trade.

Cities Where Stored.	Wheat. Bushels.	Corn. Bushels	Oats. Bushels.	Rye. Bushels	Barley. Bushels.
Albany	.....	30,000	125,000	.....	10,000
Baltimore	280,000	1,958,000	551 000	399,000	.....
Boston	685,000	995,000	258 000	1 000	16,000
Buffalo	1,621,000	112 000	232 000	135 000	1,188,000
" afloat	334 000	225 000	261 000	95 000	.....
Chicago	11,617,000	6 977 000	5 594 000	1,463 000	162,000
" afloat	200,000	2 639,000	582,000	.....	84,000
Cincinnati	6 000	1 000	9,000	8 000	133,000
Detroit	302,000	99,000	11,000	34,000	45,000
" afloat	.....	.....	.....	.....	.....
Duluth and Superior	3,844,000	18,000	1,740,000	681 000	772,000
" afloat	402,000	.....	.....	53 000	.....
Indianapolis	135,000	58,000	.....	.....	.....
Kansas City	469,000	168,000	204 000	16,000	.....
Milwaukee	305,000	4,000	6 000	427 000	111,000
" afloat	.....	.....	.....	.....	95 000
Minneapolis	18,061,000	55,000	758 000	58 000	69 000
Montreal	446 000	24 000	295 000	52,000	56 000
New York	3,599 000	4,631,000	1,851 000	295 000	386 000
" afloat	1,052,000	464,000	74,000	8,000	82,000
Oswego	27,000	.....	.....	.....	47,000
Peoria	161 000	413 000	276,000	26,000	59,000
Philadelphia	505,000	1,169 000	85 000	.....	.....
St. Louis	1,295,000	2,919,000	316 000	31,000	6,000
" afloat	.....	84,000	.....	.....	.....
Toledo	1,103,000	1,291,000	179 000	119 000	.....
" afloat	.....	.....	.....	.....	.....
Toronto	209 000	.....	64,000	.....	61,000
On Canal	.....	.....	.....	.....	.....
On Lakes	.....	.....	.....	.....	.....
On Mississippi	.....	60,000	23,000	.....	.....
Grand Total	46 658,000	24,394 000	13,494,000	3 991,000	3,782,000
Corresponding Date 1896	65,926 000	11 960,000	6 956,000	1 553,000	2,295,000

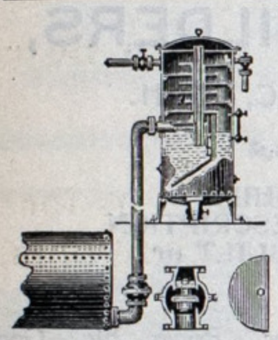
PROPELLER WHEELS.

It is always pleasant to know that good work is appreciated and it would appear that the Herreshoff Manufacturing Co., realize that the Parsons Manganese Bronze propeller wheels are among the best, as the following letter to the Wm. Camp & Sons Ship & Engine Building Co., indicates: "We have made several trials of the two Parsons Manganese Bronze propeller wheels you made for us for U. S. Torpedo Boat No. 6, and are very much pleased with them, and enclose herewith memorandum of order for one wheel, No. 6411, right hand, and one wheel, No. 6412, left hand, each three blades, for Torpedo Boat No. 7."

Mr. H. C. Burrell of Lorain, having received the endorsement of a large number of masters and owners, will, on the opening of navigation, conduct a delivery system to vessels on Detroit River. Special attention will be given to handling newspapers, periodicals, vessel orders, parcels, etc. Mr. Burrell is highly connected and well spoken of and starts in with the determination to merit a share of river business.

PROPOSALS.

U. S. Engineer's Office, Hickox Building, 185 Euclid Avenue, Cleveland, O., February 10, 1897.—Sealed proposals for constructing about 432 linear feet of west breakwater at Ashtabula Harbor, Ohio, will be received at this office until 2 o'clock p. m., standard time, Friday, March 5, 1897, and then publicly opened. All information furnished on application to JARED A. SMITH, Lieut. Col. Engineers.



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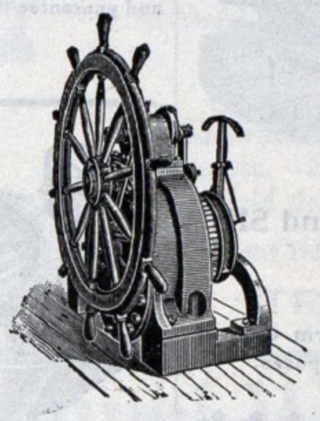

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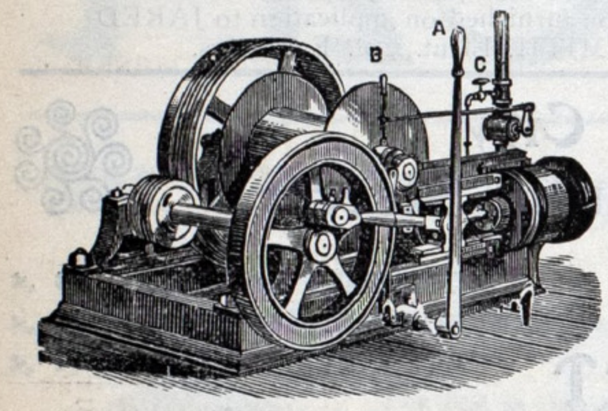

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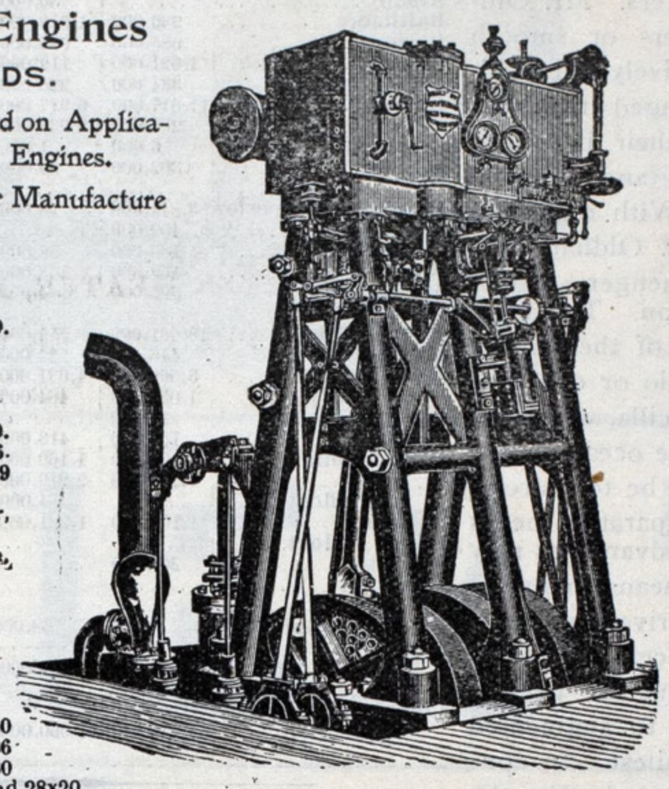

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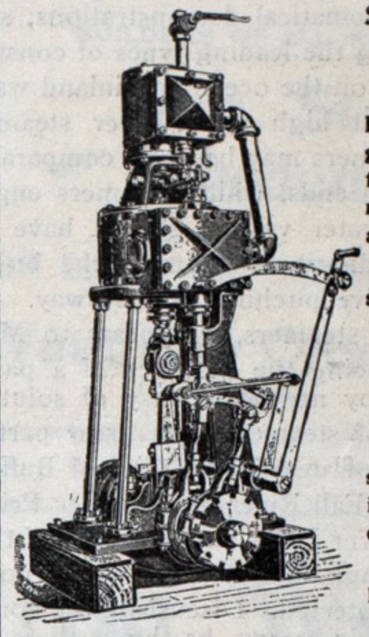

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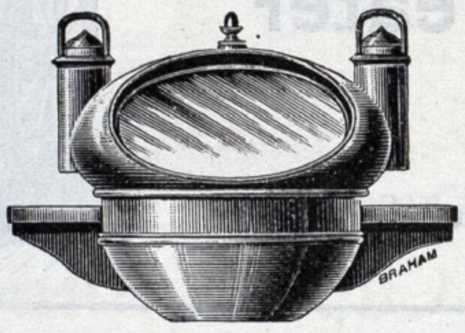

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PROPOSALS.

TREASURY DEPARTMENT, Washington, D. C., February 8, 1897.—Sealed proposals are hereby invited and will be received at this Department until 2 o'clock p. m., Monday, March 15, 1897, at which time and place they will be opened in the presence of attending bidders, for the construction by contract of two steel steam propellers for the U. S. Revenue Cutter Service, for service on the Great Lakes, to be known while in course of construction, or until launched, as "Nos. 4 and 5, R. C. S." Bids will be received, on separate forms of proposal, for either or both of the vessels. Said vessels are to be constructed in accordance with plans and specifications provided by the Secretary of the Treasury, which, together with the forms of proposal, contract, etc., may be obtained upon application to this Department. Proposals will be considered only from such shipbuilders as can show to the satisfaction of the Secretary of the Treasury that they are possessed of the necessary plant and facilities for the performance of the work. Evidence as to this ability must accompany the proposal. Each proposal must include the construction of the vessel and her machinery, complete in all respects as required by the plans and specifications. Each of said vessels must be completed and delivered at such port on the Great Lakes as may be designated by the Secretary of the Treasury, at the earliest practical date, and bidders are informed that because of the urgent need of speedy delivery, the element of time will be given due consideration in determining the award of the contract. Each proposal must be accompanied with a cash deposit or certified check payable to the order of the Secretary of the Treasury, in the sum of five thousand dollars ($5,000). The certified check of the successful bidder will be retained until the execution of a formal bond or contract, and the approval of the same by the Secretary of the Treasury, and the certified checks of the unsuccessful bidders will be returned immediately after the proposal of the successful bidder shall have been accepted. Bids must be addressed to the Secretary of the Treasury, and be indorsed on the envelope, "Proposals for revenue steamers for Great Lakes." The right is reserved to reject any or all bids and to waive defects if deemed for the interest of the Goverment so to do.

W. E. CURTIS,
Acting Secretary.

PROPOSALS.

U. S. Engineer Office, 185 Euclid Ave., Cleveland, O., February 8, 1897. Sealed proposals for furnishing and delivering timber, iron and stone, for construction of breakwater at Conneaut Harbor, Ohio, will be received here until 2 o'clock p. m., standard time, Friday, February 26, 1897, and then publicly opened. Information furnished on application to Jared A. Smith, Lt.-Col., Engineers.

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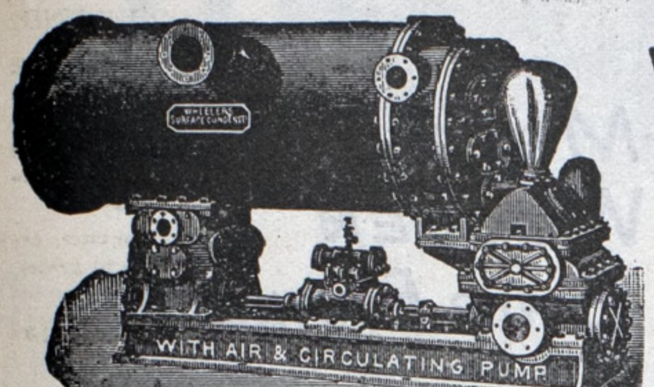

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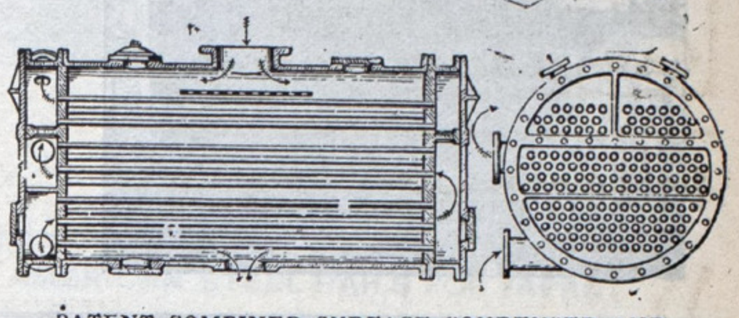

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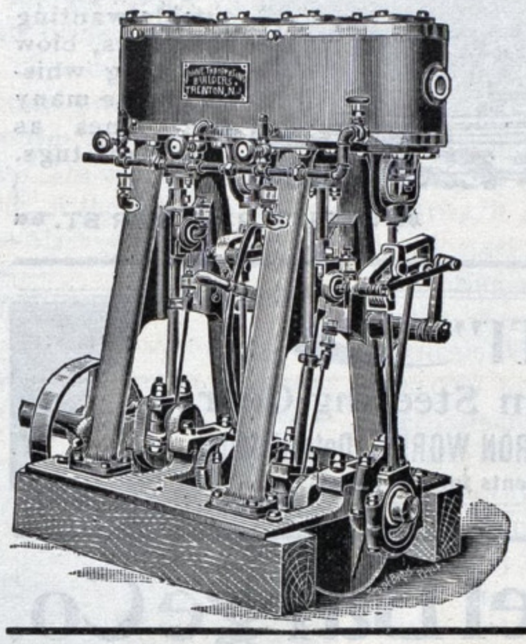

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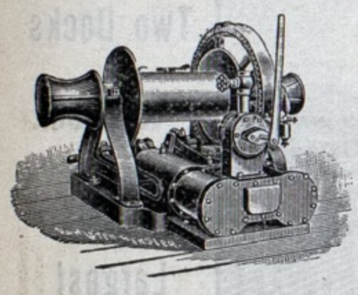

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PROPOSALS.

U. S. Engineer Office, Duluth, Minn., Dec. 16, 1896. Sealed proposals for dredging about 21,000,000 cubic yards in the harbor of Duluth, Minn., and Superior, Wis., will be received here until noon, Feb. 15, 1897, and then publicly opened. Information furnished on application. Clinton B. Sears, Major Engrs. 52-6

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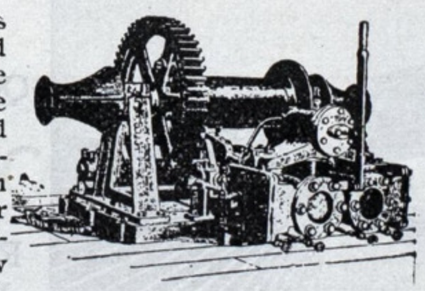

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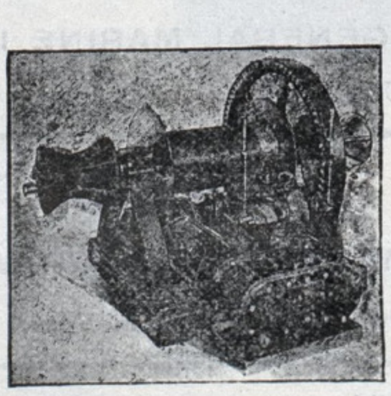

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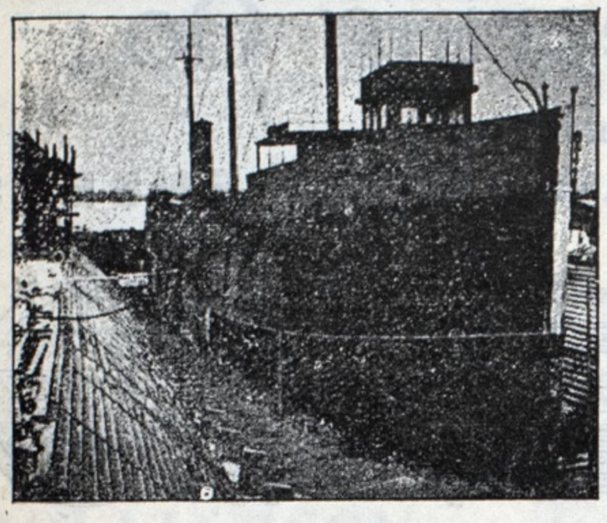

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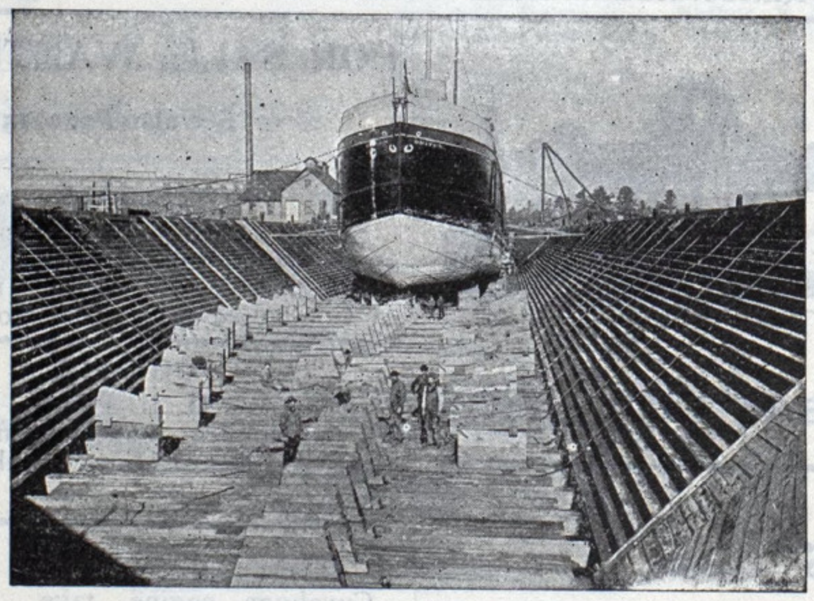

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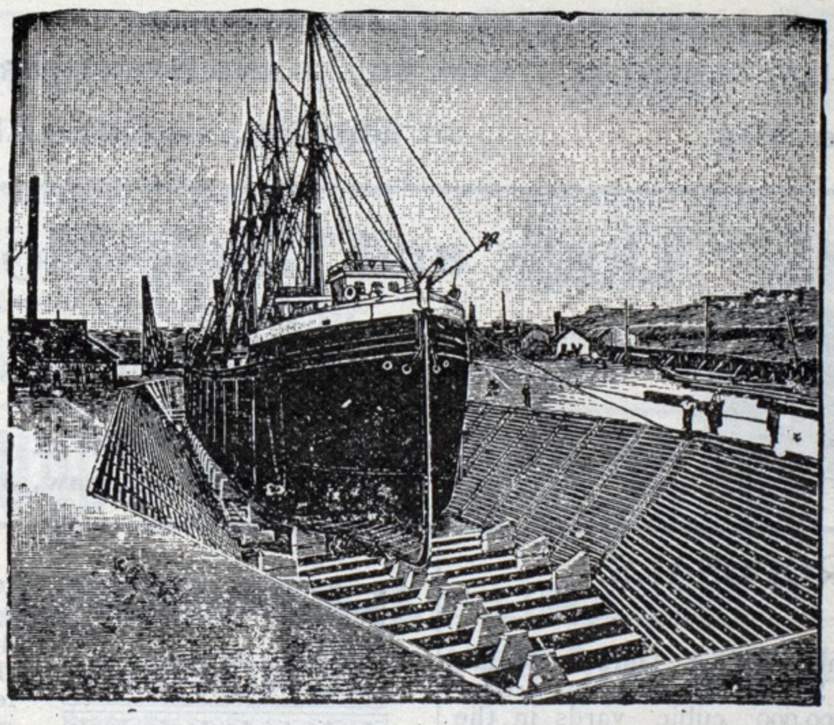

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